## b biochem biosci biotech medicine

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CA SEARCH(R)
(c) 2008 American Chemical Society. All rights reserved.
                    CA: 145(15)291047j
145291047
                                                     PATENT
Immunostimulatory oligonucleotides with stabilized internucleotide linkage for
treating cancer, allergy, asthma and infection
Inventor (Author): Krieg, Arthur M.; Samulowitz, Ulrike; Vollmer, Joerg
Location: USA
Assignee: Coley Pharmaceutical Group, Inc.; Coley Pharmaceutical GmbH Patent: PCT International; wo 200691915.4 Date: 2006081940 Application: wo 2006u56778 (20060224) *US 2005PV655931 (20050224)
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Pages: 93pp.

## CpGinternucleotidelinkage.txt

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Patent Classifications:
Class: AGIK-000/A

Designated Countries: AE, AG; AL; AM; AT; AU; AZ; BA; BB; BG; BR; BW; BY; BZ; CA;
CH; CN; CO; CR; CU; CZ; DE; DK; DM; DZ; EC; EE; EG; ES; FI; GB; GD; GE; GH; GM; HR;
HU; ID; II: IN; IS; JP; KE; KG; KM; KN; KP; KR; KZ; LC; LK; LR; LS; LT; LU; LY;
MA; MD; MG; MK; MM; MM; MX; MA; NA; NG; NI; NO; NZ; OM; PG; PH; PL; PT; RO; RU; SC;
SD; SE; SG; SK; SL; SM; SY; TJ; TM; TN; TR; TT; TZ; UA; UG; US; UZ; VC; VN; VJ; ZA
Designated Regional: AT; BE; BG; CH; CY; CZ; DE; DK; EE; ES; FI; FR; GB; GR; HU; IE;
IS; IT; LT; LU; LV; MC; NL; PL; PT; RO; SE; SI; SK; TR; BF; BJ; CF; CG; CI; CM; GA;
GN; GQ; GW; ML; MR; NE; SN; TD; TG; BW; GH; GM; KE; LS; MW; MZ; NA; SD; SL; SZ; TZ;
UG; ZM; ZW; AM; AZ; BY; KG; KZ; MD; RU; TJ; TM
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(c) 2008 Thomson Reuters. All rights reserved. 0453110 DBA Accession No.: 2008-11619 PATENT Novel immunostimulatory oligonucleotide, useful as pharmaceutical for allergic disease e.g. pollen allergy or hepatitis such as viral hepatitis such as type B or hepatitis C and as adjuvant of vaccine pharmaceutical composition comprising oligonucleotide, useful as vaccine for prevention of allergy and hepatitis C virus infection Author: IWAMURA T; NARUMI H; MASUMOTO H; KANEDA A; SONEDA A; AKIRA S Patent Assignee: TORAY IND INC; UNIV OSAKA 2007 Patent Number: WO 2007139190 Patent Date: 20071206 WPI Accession No.: 2008-M01182 ( 200870 ) Priority Application Number: JP 200746556 Application Date: 20070227 National Application Number: WO 2007JP61105 Application Date: 20070531 Language: Japanese Nověl immunostimulatory oligonucleotide, useful as pharmaceutical for allergic disease e.g. pollen allergy or hepatitis such as...
Abstract: DERWENT ABSTRACT: NOVELTY - An immunostimulatory oligonucleotide, is new. DETAILED DESCRIPTION - An immunostimulatory oligonucleotide, comprising a nucleotide sequence 5'-(G)MPXCGYQ(G)N-3'. C=cytosine; G=guanosine....is 16-37 nucleotides and excludes GGGGGGTGCCGATCGGCAGGG (SEQ ID No. 5). BIOTECHNOLOGY - Preferred Oligonucleotide: The immunostimulatory oligonucleotide containing base sequence having SEQ ID No. 59, has a base sequence of GGGGGGGTGCCGATGGCAGGC. . . No. 54), and GGGGGGGCGACGATCGTCG (SEQ ID No. 97). and Goodgoodgootgottorics (SEQ ID No. 39) and Goodgo Goodgootgottorics (SEQ ID No. 40) and Fine immunostimulatory oligonucleotide having SEQ ID No. 60 or 61 has a base sequence of GGGGGTGCTCGTCATCGATGCAGG (SEQ ID No. 30) or GGGGGGAGCAGTCGTCGG (SEQ ID No. 40) the phosphorothicate modification of phosphodiester linkage between a portion and whole nucleotide residue is carried out, preferably at G residue at.....a dose of 0.1 pmol-10 micronsol, preferably 1 pmol-1 micronsol. EXAMPLE - The

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22/3,k/3 (Ttem 2 from file: 357) Links
Derwent Biotech Res.
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0450953 DBA Accession No.: 2008-09462 PATEM.
Novel CpG immunostimulatory oligonucleotide useful for inducing immune response e.g.
interferon-alpha induction, treating cancer e.g. breast cancer, and for treating
autoimmune disease, airway modeling and viral infection pharmaceutical composition
comprising interferon-alpha obtained by gene expression, useful in treatment of
cancer, autoimmune disease and virus infection
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immunostimulatory oligonucleotide having SEQ ID No. 1 and SEQ ID No. 5 was produced

Author: DEBELAK H; UHLMANN E; JURK M Patent Assignee: COLEY PHARM GMBH 2008

22/3,K/2 (Item 1 from file: 357) Links

CODEN: PIXXD2 Language: English

Derwent Biotech Res.

by the... E.C. Numbers:

## CpGinternucleotidelinkage.txt

Patent Number: WO 200868638 Patent Date: 20080612 WPI Accession No.: 2008-J70765 (200856) Priority Application Number: US 847811 Application Date: 20060927 National Application Number: WO 2007IB4389 Application Date: 20070925 Language: English Novel CpG immunostimulatory oligonucleotide useful for inducing immune response e.g. interferon—alpha induction, treating cancer e.g...

Abstract: DERMIN ABSTRACT: NOVELTY – An CpG immunostimulatory oligonucleotide, is new. DETAILED DESCRIPTION – An CpG immunostimulatory oligonucleotide comprising REYYRZ, is new. RI<sub>R</sub>Z=lipophilic substituted nucleotide analog (L), nucleotide or linkage, preferably lipophilic substituted nucleotide analog (L); Y=pyrimidine nucleotide analog (L); Y=pyrimidine nucleotide analog (L); Y=pyrimidine nucleotide has tenst two 5'-ends. The two nucleotides of the oligonucleotide have stabilized linkage. The stabilized linkage is phosphorothicate, phosphorodithicate, methylphosphonate, methylphosphonothioate boranophosphonate, phosphoramidate, or dephospho linkage, either as enantiomeric mixture or as enantiomeric pure S-or R-configuration. The oligonucleotide having the sequence of R1YzR2, in which YZ has phosphodiester linkage or phosphorothioate linkage, R1Y has phosphorothioate linkage, ZR2 has Inkage or phosphorothloate linkage, RLY has phosphorothloate linkage, ZR2 has phosphorothloate linkage, and all other nucleotides has phosphorothloate linkage. The oligonucleotide is free of microcarrier or lipid carrier. The oligonucleotide is A, B, C... The B class oligonucleotide has the sequence of 5'TCNITXIXZCGX3X43'. The oligonucleotide comprises 3'-3' linkage or 5'-5' linkage. Preferred Method: The immune induction method further involves an antigen. The treatment method for cancer... ... at a dosage of 0.1 mu g-10 mg. ADVANTAGE - The oligonucleotide provides excellent immunostimulatory effect. EXAMPLE - No suitable example given. (117 pages) E.C. Numbers: 22/3,K/4 (Item 3 from file: 357) Links Derwent Biotech Res. (c) 2008 Thomson Reuters. All rights reserved. 0448004 DBA Accession No.: 2008-06513 PATENT New vaccine composition, useful for treating atherosclerosis or for increasing the level of high density lipoprotein-associated (holesterol (HDL-C) in the blood of a individual pharmaceutical composition comprising adjuvant and therapeutic protein, useful as vaccine for treatment of atheroscleorosis Author: RITTERSHAUS C W; THOMAS L J; KRIEG A M Patent Assignee: COLEY PHARM GROUP INC; AVANT IMMUNOTHERAPEUTICS INC 2008
Patent Number: WO 200857529 Patent Date: 20080515 WPI Accession No.: 2008-G03624 (200838) Priority Application Number: US 859005 Application Date: 20061106 National Application Number: WO 2007US23353 Application Date: 20071106 Language: English Abstract: ...portion linked to a helper T cell epitope portion; and (2) an adjuvant comprising an immunostimulatory oligonucleotide. DETAILED DESCRIPTION - INDEPENDENT CLAIMS are: (1) a method of treating atherosclerosis in an individual.....the vaccine composition or the antigenic hybrid polypeptide and an adjuvant. BOTECHNOLOGY - Preferred Composition: The immunostimulatory oligonucleotide is a BNA CPG oligonucleotide having at least one unmethylated CPG dinucleotide. The broad....oligonucleotide is a T class oligonucleotide. The CPG oligonucleotide comprises at least one 3'-3' linkage. The CPG oligonucleotide comprises at least one 5'-5' linkage. The vaccine composition further comprises a non-nucleotidic brancher moiety. The vaccine composition further comprises.....least two 5'-ends. At least one nucleotide of the CpG oligonucleotide has a stabilized linkage. The stabilized linkage is phosphorothioate, phosphorodithioate, methylphosphonate, methylphosphonothioate, boranophosphonate, phosphoramidate, or a dephospholinkage. The CG dinucleotide has a phosphorothioate linkage. The CG dinucleotide has a phosphorothioate linkage. The CG dinucleotide has a least three CG dinucleotides has a phosphodiester or phosphodiester-like internucleotide linkage, and the oligonucleotide includes at least one stabilized internucleotide linkage. All other nucleotides have a phosphorothioate linkage. All nucleotides of the CpG oligonucleotide have a phosphorothicate linkage. The CpG oligonucleotide is

CpGinternucleotidelinkage.txt 5'TCGTCGTTTTTGTCGTTT3' (SEQ ID NO: 3). The immunostimulatory oligonucleotide is an RNA oligonucleotide. The immunostimulatory oligonucleotide and antigenic hybrid polypeptide are administered simultaneously or sequentially. The composition comprises: (a) an.....portion linked to a helper T\_cell epitope portion; and (b) an adjuvant comprising an immunostimulatory oligonucleotide for treating atherosclerosis in an individual. ACTIVITY - Metabolic; Antiarteriosclerotic. No biological data given.MECHANISM... E.C. Numbers:

22/3,K/5 (Item 4 from file: 357) Links Derwent Biotech Res. (C) 2008 Thomson Reuters. All rights reserved.
0446896 DBA Accession No.: 2008-05405 PATENT
New Composition comprising immunostimulatory oligonucleotide and anti-viral agent, useful for treating a cancer, viral or bacterial infection pharmaceutical composition comprising immunostimulatory oligonucleotide, useful in treatment of cancer, virus and bacterium infection Author: VOLLMER J; JURK M; UHLMANN E; DEBELAK H; BRATZLER R L: VICARI A Patent Assignee: COLEY PHÁRM GROUP INC; COLEY PHÁRM GMBH; COLEY PHÁRM GROUP LTD Patent Number: WO 200839538 Patent Date: 20080403 WPI Accession No.: 2008-F00138 (200834) Priority Application Number: US 847408 Application Date: 20060927 National Application Number: WO 2007US21030 Application Date: 20070927 Language: English New composition comprising immunostimulatory oligonucleotide and anti-viral agent, useful for treating a cancer, viral or bacterial infection pharmaceutical composition comprising immunostimulatory oligonucleotide, useful in treatment of cancer, virus and bacterium infection linked to the immunostimulatory oligonucleotide, is new DETATLED DESCRIPTION - INDEPENDENT CLAMS are: (1) a method for treating viral disease......composit (3) a method for screening for molecules containing an anti-viral agent and an (3) a method for screening for molecules containing an anti-viral agent and an immunostimulatory oligonucleotide that have anti-viral activity; (4) a method for treating cancer; and (5) a method for treating bacterial infection. BIOTECHNOLOGY - Preferred Composition: The immunostimulatory oligonucleotide is linked to the anti-viral agent directly. The immunostimulatory oligonucleotide is linked to the anti-viral agent indirectly. The immunostimulatory oligonucleotide and the anti-viral agent are part of the same molecule. The anti-viral is one or more nucleotide analogs. The composition further comprises a nuclease susceptible site nucleotide analogs. The composition further comprises a nuclease susceptible site between immunostimulatory oligonucleotide and the anti-viral agent. The immunostimulatory oligonucleotide contains at least one 3'-3' or 5'-5' linkage. The composition further comprises a pharmaceutical carrier. The composition is sterile. The anti-viral agent is loxoribine, isatoribine, ribavirin, valopicitabine, BILN 2061, or VX-950. The immunostimulatory oligonucleotide comprises a chimeric backbone, RNA oligonucleotide, or DNA oligonucleotide. The DNA oligonucleotide is an...least one unmethylated CpG dinucleotide, where the at least one unmethylated CpG dinucleotide includes a phosphodiester or phosphodiester-like internucleotide linkage, and where the oligonucleotide includes at least one stabilized internucleotide linkage. The DNA oligonucleotide includes at least three stabilized internucleötide linkage. The DNĀ oligonucleotide includes at least three unmethylated CpG dinucleotides, where the at least three unmethylated CpG dimucleotides include a phospholester or phosphodiester-like unlethylated by dimucleotide includes include a phosphodiester or phosphodiester-like internucleotide linkage, and where the oligonucleotide includes at least one stabilized internucleotide linkage. The antiviral agent is linked to an internal nucleotide or to a terminal nucleotide. The composition further comprises a second anti-viral agent formulated with the immunostimulatory. oligonucleotide. The second anti-viral agent is linked to the immunostimulatory oligonucleotide. The composition includes a microparticle housing the immunostimulatory oligonucleotide and the anti-viral agents. The composition

CpGinternucleotidelinkage.txt includes a liposome housing the immunostimulatory RNA oligonucleotide and the

anti-viral agent. The DNA oligonucleotide is not an abasic containing oligonucleotide. The DNA oligonucleotide is not an adapter oligonucleotide. A composition comprises an immunostimulatory RNA oligonucleotide and an anti-viral agent where the anti-viral agent is associated with the immunostimulatory RNA oligonucleotide. The composition includes a microparticle housing the immunostimulatory RNA oligonucleotide and the anti-viral agent. The composition includes a liposome housing the immunostimulatory RNA oligonucleotide and the anti-viral agent. The anti-viral agent is one or more nucleotide analogs. The composition further comprises a nuclease susceptible site between the

composition further comprises a nuclease susceptible site between the immunostimulatory RNA oligonucleotide and the anti-viral agent. The composition further comprises a pharmaceutical carrier. The.....9 ligand linked to an anti-viral agent of the TLR7/8/9 ligand is an immunostimulatory oligonucleotide. The TLR7/8/9 ligand is linked to the anti-viral agent directly or....immune-stimulating anti-viral composition. Screening for molecules containing an anti-viral agent and an immunostimulatory oligonucleotide that have anti-viral activity, comprises isolating immune cells from a virus-infected patient.....are activity, Comprises isolating immune cells from a virus-infected patient.....are cultured. Treating cancer comprises administering to a subject having cancer a composition of an immunostimulatory oligonucleotide and an anti-viral agent in an amount to treat the cancer. The anti-viral agent is linked to the immunostimulatory oligonucleotide. The anti-viral agent is ribavirin. The immunostimulatory oligonucleotide by an RNA oligonucleotide or a DNA oligonucleotide where the DNA oligonucleotide is an....bacterial infection comprises administering to a subject having a bacterial infection a composition of an immunostimulatory oligonucleotide and an anti-viral agent in an amount to treat the bacterial infection. ACTIVITY... Descriptors: pharmaceutical comp., immunostimulatory oligonucleotide, appl. cancer,

virus, bacterium infection therapy cytostatic virucide hepatotropic antiinflammatory tumor (27, 26)

22/3.K/6 (Item 5 from file: 357) Links

Derwent Biotech Res. (c) 2008 Thomson Reuters. All rights reserved. 0443997 DBA Accession No.: 2008-02194 PATENT

Obtaining immunoglobulin Y antibodies useful for treating e.g. diarrhoea involves generating antibodies by immunizing avian organisms with composition comprising antigens, and contacting with different antibodies involving immunoglobulin Y antibody for prognosing and treating diarrhea, dysentery, cholera, Streptococcus mutans serotype c infection, cystic fibrosis and upper respiratory infection

Author: LARSEN J B

Patent Assignee: BEIERHOLM HOLDING APS JANUS 2007 Patent Number: WO 200779755 Patent Date: 20070719 WPI Accession No.: 2008-B14418

( 200807 ) Priority Application Number: DK 200654 Application Date: 20060112
National Application Number: WO 2007DK18 Application Date: 20070112

Language: English

Abstract: ...thioether bonds, single carbon bonds, double carbon bonds, triple Adolt actions, disuffice bonds, suffice bonds, phosphodiester bonds, oxime bonds, inine bonds, and/or imide bonds, and the chemical molecy does not....thicethonds, single carbon bonds, double carbon bonds, triple carbon bonds, disuffice bonds, sulfide bonds, phosphodiester bonds, oxime bonds, imine bonds, and/or imide bonds: The bonds joining individual peptide residues....to self organize into lipsomes), OM-174 (lipid A derivative), Cpc motifs (synthetic oligonucleotides containing immunostimulatory CpG motifs), modified bacterial toxins, LT and CT, with non-toxic adjuvant effects, Endogenous human... ... acylation of conserved lysine residues with a biotin appendage) and/or e.g. glutamylation (covalent linkage of glutamic acid residues to tubulin and some other proteins) and/or e.g. glycylation (covalent linkage of one to more than 40 glycine residues to the tubulin C-terminal tail) and....include modifications by the addition of other proteins or peptides such as ISGylation (the covalent linkage to the ISG 15 protein (Interferon-Stimulated Gene 15)) and/or SUMOylation (the covalent linkage to the SUMO protein

CpGinternucleotidelinkage.txt (Small Ubiquitin-related Modifier)) and/or ubiquitination (the covalent linkage to

camail outquitin-related Modifier) and/or ubiquitination (the covalent linkage the protein ubiquitin); or change of the chemical nature of amino acids, such as... caid or asparagine to aspartic acid); or structural changes such as disulfide bridges (the covalent linkage of two cysteine amino acids) and/or proteolytic cleavage (cleavage of a protein at a peptide bond). The primary and secondary antigens may differ in peptide linkage by specific linkers forming di-, tri-, tetra-, penta-, hexa-, hepta-, octa-, nona- or deca-polypeptides... E.C. Numbers:

22/3,K/7 (Item 6 from file: 357) Links Derwent Biotech Res. Derwent Blotech Res. (c) 2008 Thomson Reuters. All rights reserved. (c) 2008 Thomson Reuters. All rights reserved. 0426609 DBA Accession No.: 2007-12547 PATENT New Immunostimulatory oligonucleotides for generating immune response for treating or preventing e.g. cancer, autoimmune disorder, airway inflammation, inflammatory disorders, skin disorders, allergy and asthma involving vector-mediated gene transfer and expression in host cell for use in cancer, autoimmune disorder, airway inflammation, inflammatory disorder, skin disorder, allergy and asthma therapy Author: AGRAWAL S; KANDIMALLA E; YU D; BHAGAT L Patent Assignee: IDERA PHARM INC 2007 Patent Number: US 20070093439 Patent Date: 20070426 WPI Accession No.: 2007-360722 (200734) Priority Application Number: US 257769 Application Date: 20051025 National Application Number: US 257769 Application Date: 20051025 Language: English New immunostimulatory oligonucleotides for generating immune response for treating or preventing e.g. cancer, autoimmune disorder, airway... Abstract: DERWENT ABSTRACT: NOVELTY - Immunostimulatory oligonucleotides are new. DETAILED DESCRIPTION - Immunostimulatory oligonucleotides of formulae
5'-TGTCR'TTCTC-X-CTCTTR'CTGT-5' (Ia), 5'-GTCR'TTCTC-X.....5' (Il), are new.
Re2'-deoxy-7-deazaquanosine; R'-arabinoguanosine; X'-arabinoguanosine; X' composition (C1) comprising: the immunostimulatory oligonucleotide and a carrier. WIDER DISCLOSURE - Also disclosed is an immunostimulatory agent comprising greater than or equal to2 oligonucleotide branches linked together, of formula 5'-(N... ...sugar (all optionally covalently linked to a non-nucleotidic linker); p=natural or modified internucleoside linkage; Y=cytosine, 5-hydroxycytosine, N4-alkyl-cytosine, 4-thiouracil, other non-natural pyrimidine nucleoside, or...antigen, allergen, chemotherapeutic agent or adjuvant. Preparation (disclosed): No general method for preparation of the immunostimulatory oligonucleotides is given. ACTIVITY - Cytostatic; Immunostimulant; Immunosuppressive; Respiratory-Gen.; Antiinflammatory; Dermatological; Antiallergic; Antiasthmatic; Antimicrobial. An...
...to obtain the blood level of the oligonucleotide of (0.0001 - 10) muM. ADVANTAGE - The immunostimulatory oligonucleotides are less expensive to make than the existing immunostimulatory oligonucleotides; such as CpG dinucleotide containing oligonucleotides, and comprise short oligonucleotide-based agents that are... E.C. Numbers: Descriptors: recombinant immunostimulatory oligonucleotide prep., isol.,

22/3,K/8 (Item 7 from file: 357) Links Derwent Biotech Res. (c) 2008 Thomson Reuters. All rights reserved. 0424351 DBA Accession No.: 2007-10289 PATENT New composition comprises double-stranded short interfering ribonucleic acid (SiRNA), useful for treating cancer, infectious diseases, autoimmune diseases, transplant rejection, or allergy or asthma sense and antisense ds short interfering RNA for RNA interference, and cancer, infectious disease, autoimmune disease, transplant rejection, allergy or asthma gene therapy

vector-mediated gene transfer, expression in host cell, oligonucleotide, appl.,

cancer, autoimmune...

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Author: UHLMANN E; JURK M; VOLLMER J; SCHETTER C; WEBER M
Patent Assignee: COLEY PHARM GMBH; QIAGEN GMBH
                                                                                                                                                 2007
 Patent Number: WO 200731877 Patent Date: 20070322 WPI Accession No.: 2007-283939
   (200727)
 Priority Application Number: US 717597 Application Date: 20050916
National Application Number: WO 2006IB3356 Application Date: 20060915
 Language: English
Abstract: ...O-methyl nucleotide, is new. DETAILED DESCRIPTION - INDEPENDENT CLAIMS
are: (1) a method for reducing immunostimulatory potential of a double-stranded
sirkNa, the siRNA having a sense strand and an antisense.....modification at the 3'end of the sense strand. Preferably, the sense strand has a phosphodiester backbone. The sense strand has a stabilized backbone comprising at least one stabilized internucleotide linkage selected from thioformacetal, phosphorothioate, methylphosphonate, bor formacetale. Preferred Method: Reducing immunostimulatory potential of a double-stranded siRNA, the siRNA having a sense thand a minimum another content and the size of 
strand and an antisense.....biological data given. MECHANISM OF ACTION - Gene
Therapy. USE - The composition is useful for reducing immunostimulatory potential of
a double-stranded siRNA, and for reducing expression of a gene having a...
E.C. Numbers:
Descriptors: sense, antisense ds short interfering RNA, 2' modification, locked
nucleic acid, 2'-O-methyl nucleotide, phosphodiester backbone, appl. RNA
 interference, cancer, infectious disease, autoimmune disease, transplant rejection,
allergy, asthma, pancreas cancer...
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S6
                     S S5 AND INTERNUCLEOTIDE
                     S E17-E18
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59
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S13
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S14
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                     S E1-E9
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IMMUNOSTIMULATORY)
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                    S (PHOSPHO? AND (INTERNUCLEOTIDE(W)LINKAGE) AND STABILIZE AND
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IMMUNOSTIMULATORY)
s19
                0
                     S (IMMUNOSTIMUALTORY AND (NUCLEOTIDE(W)LINKAGE) AND MODIF? AND
STABIL?)
S20
             236
                     S IMMUNOSTIMULATORY AND LINKAGE
               19
S21
                     S S20 AND PHOSPHODIESTER
522
               19
                     RD (unique items)
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